REMARKS/ARGUMENTS

Initially, Applicants would like to express appreciation to the Examiner for the detailed Official Action provided, as well as the subsequent Advisory Action dated September 4, 2007.

Upon entry of the above amendments, claims 1, 4 and 5 will have been amended, and claim 3 will have been canceled (without prejudice or disclaimer to the subject matter contained therein). Claims 1, 2 and 4-17 are currently pending, with claims 9-16 being withdrawn from consideration. Applicants respectfully request reconsideration of the outstanding rejections, and allowance of all the claims pending in the present application.

In the Official Action, the Examiner has rejected claims 1-5, 7 and 17 under 35 U.S.C. § 103(a) as being unpatentable over ZAKEL (U.S. Patent No. 6,070,788);

the Examiner has rejected claims 1-5, 7-8 and 17 under 35 U.S.C. § 103(a) as being unpatentable over ZAKEL in view of SCHWIEBERT et al. (U.S. Patent No. 5,880,017);

the Examiner has rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over ZAKEL, as applied to claim 4 above, and further in view of DEGANI et al. (U.S. Patent No. 5,125,560), and

the Examiner has also rejected claim 6 as being unpatentable over ZAKEL and SCHWIEBERT, as applied to claim 4 above, and further in view of DEGANI.

Without acquiescing to the propriety of the Examiner's rejections, Applicants have amended independent claims 1 and 4 solely in order to expedite prosecution of the present application.

In this regard, Applicants note that none of the applied prior art, alone or in any properly reasoned combination, discloses the combination of elements as generally recited in claims 1 and 4.

In particular, both claims 1 and 4 generally set forth a solder supplying or bump forming method including, inter alia, dropping solder fine particles toward the substrate so that particles having a predetermined size reach the substrate when the falling speeds of the solder fine particles are within a specific time period, the specific time period being defined to exclude solder fine particle both larger and smaller than the predetermined size.

Applicants submit that ZAKEL, SCHWIEBERT, and DEGANI, alone or in any properly reasoned combination, do not disclose at least the above-noted combination of elements.

In setting for the rejections, the Examiner cites to ZAKEL as purportedly teaching forming solder bumps (14) by depositing solder particles on a substrate, and that particles deposited on the substrate must pass through a screen (15). While the Examiner's assertion is true, the aforementioned assertion merely emphasizes the difference between ZAKEL and the presently claimed invention.

In particular, contrary to the Examiner's conclusion, Applicants submit that that the method disclosed in ZAKEL is a different method from the presently claimed method. More specifically, the screen (15) of ZAKEL, at best, will only screen out larger solder fine particles (i.e., particles too large to pass through the screen); however, allow smaller solder fine particles would be allowed to pass through the screen along with the solder fine particle having the desired size.

In other words, solder fine particles which are "undesirably" too small will also pass through the screen disclosed in ZAKEL. In this regard, Applicants note that solder fine particles which are too small have the disadvantage of having their surfaces easily oxidized.

Thus, ZAKEL does not disclose dropping solder fine particles toward the substrate so that particles having a predetermined size reach the substrate when the falling speeds of the solder fine particles are within a specific time period, the specific time period being defined to exclude solder fine particle both larger and smaller than the predetermined size. More simply put, the screen of ZAKEL is not capable of screening out both "undesirably" large and small solder fine particles (i.e., solder fine particles falling outside of the specified time period).

In this regard, Applicants submit that the presently claimed invention has at least one advantage in that, by selecting the solder fine particles having specific falling speeds (i.e., those falling with a specified time period), both the generation of solder bridges and the deterioration of the solder wetability by the oxide film may be suppressed (see page 8, lines 7-20, of the present disclosure).

That is, Applicants achieve desirable particle size based upon a relationship between falling speeds and particle sizes, as recited in different terms in claims 1 and 4.

Further, in regard to the Examiner's reliance on DEGANI and SCHWIEBERT as purportedly disclosing the specific range of solder fine particles and utilizing flux in a liquid, respectively; Applicants note that the Examiner has provided no explanation or reasoning for correcting the above-noted deficiencies in the teachings of ZAKEL.

Additionally, Applicants further submit that DEGANI and SCHWIEBERT do not provide any teachings which could reasonably be characterized as curing the above-noted deficiencies in the teachings of ZAKEL. More specifically, Applicants submit that DEGANI and SCHWIEBERT do not disclose at least the presently claimed method of dropping solder fine particles toward the substrate so that particles having a predetermined size reach the substrate when the falling speeds of the solder fine particles are within a specific time period, the specific time period being defined to exclude solder fine particle both larger and smaller than the predetermined size, as generally recited in claims 1 and 4.

Accordingly, the Examiner is respectfully requested to withdraw the rejections under 35 U.S.C. § 103 and allow all pending claims in the present application.

Further, Applicants request that, if and when the Examiner determines that independent claim 1 is in condition for allowance, the Examiner rejoin non-elected claims 9-16 which depend from independent claim 1, which has been examined on its merits.

In view of the remarks contained herein, Applicants submit that independent claims 1 and 4, and claims 2 and 5-17 respectively depending therefrom, are in condition for allowance.

Thus, it is respectfully submitted that all of the claims in the present application are clearly patentable over the references cited by the Examiner, either alone or in any proper combination, and an indication to such effect is respectfully requested, in due course.

SUMMARY

Applicants submit that the present application is in condition for allowance, and respectfully requests an indication to that effect. Applicants has argued the allowability of the claims and pointed out deficiencies of the applied references. Accordingly, reconsideration of the outstanding Official Action and allowance of the present application and all the claims therein are respectfully requested and is now believed to be appropriate.

Applicants note that this amendment is being made to advance prosecution of the application to allowance and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All other amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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